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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,023	06/24/2003	Marc Weydert	DN2002105	2594
27280	7590	01/10/2005	EXAMINER	
THE GOODYEAR TIRE & RUBBER COMPANY INTELLECTUAL PROPERTY DEPARTMENT 823 1144 EAST MARKET STREET AKRON, OH 44316-0001			HUANG, MEI QI	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/603,023	WEYDERT ET AL	
	Examiner	Art Unit	
	Mei Q. Huang	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003 and 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 7 is objected to because of the following informalities: please remove "however" (page 26, line 32). Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being obvious over Corvasce et al. (U.S Patent 5,672,639) in view of Kim et al. (KR2003037142).

The prior art to Corvasce et al. relates to a rubber composition containing a (A) 100 parts by weight of at least one diene-based elastomer, (B) about 0.1 to about 120

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phr of at least one reinforcing filler for said elastomer(s) comprised of at least one starch/plasticizer composite (Column 15, line 48-52).

The difference between the prior art and the present invention is the using of an adduct of maleic anhydride and polybutadiene in the rubber composition formulations. Corvasce et al. do not disclose that an adduct of maleic anhydride and polybutadiene can be used in making the rubber composition.

The prior art to Kim et al. provides a chlorinated rubber composition with comprises a specific resin component, maleinized polybutadiene (Abstract). Kim et al. further disclose that 0.1-5 parts by weight of maleinized polybutadiene is used in the rubber composition formulation herein said maleinized polybutadiene has 2-15 maleic anhydrides per a repeating unit, a number average molecular weight of 1,000-6,000 g/mol, and a viscosity of 50-1,000 poise. Moreover, Kim et al. teach that adding this specific resin component, maleinized polybutadiene, to the rubber composition can maximize releasing property.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the adduct of maleic anhydride and polybutadiene, as taught by Kim et al., in the rubber composition formulation of Corvasce et al. in order to improve releasing property of Corvasce et als' composition.

With regard to the glass transition temperature of the adduct of maleic anhydride and polybutadiene as described in Claim 16, given the substantial identical average molecular weight and amount of maleic anhydrides per polymer chain of the maleic modified polybutadiene between the prior art and the present application, it is the

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examiner's position to believe that the maleic modified polybutadiene in the prior art must inherently possess the same glass transition temperature. Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to the applicant to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980).

In regard to Claim 7, Corvasce et al. further disclose that the starch used in the starch/synthetic plasticizer is composed of amylose units and amylopectin units in a ratio of about 15/85 to about 35/65, and has a softening point according to ASTM No. D1228 in a range of about 180 °C to about 220 °C provided, however, that said starch/plasticizer composite has a softening point in a range of about 110 to about 160 °C according to ASTM No. D1228 (column 15, line 56-62).

In regard to Claim 8, Corvasce et al. disclose that the starch/synthetic plasticizer herein said plasticizer is a liquid at 23 °C. and is selected from at least one of poly(ethylenevinyl alcohol), cellulose acetate and plasticizers based, at least in part, upon diesters of dibasic organic acids and forms said starch/plasticizer composite having a softening point in a range of about 110 °C. to about 160 °C. when combined with said starch in a weight ratio in a range of about 1/1 to about 2/1 (column 16, line 34-41).

In regard to Claim 9, Corvasce et al. disclose that starch/synthetic plasticizer herein said plasticizer has a softening point of less than the said starch and less than 160 °C. and is selected from at least one of poly(ethylenevinyl alcohol), cellulose acetate and copolymers, and hydrolyzed copolymers, of ethylene-vinyl acetate

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copolymers having a vinyl acetate molar content of from about 5 to about 90, alternatively about 20 to about 70, percent, ethylene-glycidal acrylate copolymers and ethylene-maleic anhydride copolymers (column 17, line 7-15).

In regard to Claim 10, Corvasce et al. teach that diene based elastomer used in the rubber composition formulation is selected from at least one of homopolymers of isoprene and 1,3-butadiene and copolymers of isoprene and/or 1,3-butadiene with a aromatic vinyl compound selected from at least one of styrene and alphas-methylstyrene (column 17, line 50-55).

In regard to Claims 11 and 12, Corvasce et al. teach that the rubber reinforcing carbon black is used in conjunction with the starch composite in an amount of at least 5 and preferable at least 35 phr of carbon black (column 5, line 41-44) and, if silica is used as a reinforcement together with carbon black, the weight ratio of silica to carbon black is desirably in a weight ratio in a range of about 0.1/1 to about 10/1 (column 6, line 14-16).

In regard to Claims 13 and 14, Corvasce et al. teach the rubber composition containing a starch/plasticizer composite and pneumatic tires having at least one component comprised of such rubber composition and such tire component can be, for example, its circumferential tread or other component of the tire (Abstract).

In regard to Claim 15, Corvasce et al. disclose that the rubber composition of wherein the diene based elastomer is selected from at least one of cis 1,4-polyisoprene rubber, 3,4-polyisoprene rubber, styrene/butadiene copolymer rubbers, isoprene/butadiene rubber, styrene/isoprene/butadiene terpolymer rubbers, cis 1,4-

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polybutadiene rubber, medium vinyl polybutadiene rubber, high vinyl polybutadiene rubber having a vinyl content in a range of about 15 to about 85 percent and emulsion polymerization prepared styrene/butadiene/acrylonitrile terpolymer rubber and butadiene/acrylonitrile copolymer rubber (column19, line 5-14).

Conclusion

The prior art made of record but not relied upon is considered pertinent to applicant's disclosure. The following references have been cited to show the state of the art with respect to the study of the rubber composition.

U.S. Patent 6,695,734 to Hedberg et al.

U.S. Patent 6,464,607 to Rosenboom et al.

U.S. Patent 6,617,383 to Ikawa et al.

JP410087888 to Fukutomi

JP411323023 to Nohara

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mei Q. Huang whose telephone number is (571) 272-3549. The examiner can normally be reached on 8am - 4pm, Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

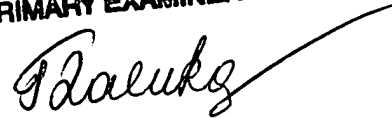
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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mei Q. Huang
Patent Examiner

December 3, 2004

TATYANA ZALUKAEVA
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'T. Zalukaeva', with a long horizontal stroke extending to the right.